United States Steel Corporation
Law Department
600 Grant Street
Pittsburgh, PA 15219-2800
Tel: 412.433.2919
Fax: 412.433.2964
E-mail: dwhacker@uss.com

David W. Hacker
Attorney-Environmental

May 27, 2009

VIA UPS OVERNIGHT DELIVERY

EPS/UB

MAY 28 2009

Attn: Compliance Tracker, AE-17J
Air Enforcement and Compliance Assurance Branch
U.S. Environmental Protection Agency
Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Dear U. S. EPA Region V Representative:

On or about April 23, 2009, United States Steel Corporation (U. S. Steel) received a Clean Air Act Section 114 Request for Information regarding its Gary Works. As discussed with Sabrina Argentieri of U. S. EPA on May 21, 2009, U. S. EPA agreed to accept a response submitted on or before May 27, 2009, as timely.

Please note that the responses and attachments provided herein shall not constitute any admission of liability on the part of U. S. Steel for any alleged violations.

U. S. EPA Request No. 1: Doors – "Provide a detailed explanation of the actions taken to date by U. S. Steel to prevent the reoccurrence of coke oven door leaks at Batteries 2, 5 and 7."

U. S. Steel Response:
As mentioned in prior correspondence, U. S. Steel has implemented several corrective as well as proactive actions which have proven to be successful. U. S. Steel has implemented the following programs to minimize door emissions from Batteries 2, 5 and 7:

1. Door Inspection Program – U. S. Steel implemented a door inspection program which includes the following steps:
    a. Routine inspection of the doors for:
        i. Identification of doors which are in need of repair; and/or
        ii. Identification of doors which are in need of replacement;
    b. Completion of identified repairs or replacements.
    c. This results in improved door performance because the new doors improve sealing and adjustability.
2. Installation of new buckstays and door frames as necessary and appropriate.
    a. This results in improved door performance because it results in a better sealing surface.
3. Installation of improved extractor heads on the door machines.

   a. This results in improved door performance because the improvements limit the damage to the sealing surfaces when removing and replacing the doors.
4. Continued focus on training and management focus on compliance.
   a. This results in improved door performance because door removal and replacement required for each push is manpower intensive. Better trained operators can remove and replace doors to minimize door damage and to minimize emissions. Enforcement of policies and procedures by management is also required to ensure compliance.
5. Offtake Inspection Program – U. S. Steel implemented an offtake inspection program which included the following steps:
   a. Routine inspection of the offtakes for:
      i. Identification of offtakes which are in need of repair; and/or
      ii. Identification of offtakes which are in need of replacement.
   b. Completion of identified repairs or replacements.
   c. This results in improved door performance because it allows the coke oven gas unrestricted escape from the oven chamber to the collector main.

As noted in the attached table, Table 1, compliance with door emission standards has improved greatly as a result of implementing these programs. Implementation of this program results in expeditious repairs being made to the doors as necessary; and door replacement when appropriate. U. S. Steel has replaced approximately 323 doors at the coke plant since the date of the last door emission exceedance (October 19, 2007) alleged in the NOV/FOV. While U. S. Steel maintains a goal to achieve 100% compliance, it is significant to note that since January 2008, the percent compliance with the door emission standards has improved to 99.7% for the entire coke plant. However, U. S. Steel recognizes that the data can be better understood and realized when reviewed on a battery-specific basis. Below, U. S. Steel is summarizing the data provided in Table 1:

1. **Battery 2** – Of the ten (10) alleged door violations cited in the NOV/FOV, two (2) alleged violations were for Battery 2. As seen in the attached data for doors, there have been no exceedances of the state door limit since those alleged in the NOV/FOV, with the last allegedly occurring in July 2007. Thus, since then U. S. Steel has achieved a 100% compliance rate with the applicable door emission standards on Battery 2.

2. **Battery 5** - Of the ten (10) alleged door violations cited in the NOV/FOV, four (4) alleged violations were for Battery 5. As seen in the attached data for doors, there have been two (2) isolated door exceedances out of over 540 observations, yielding a 99.6% compliance rate, since those alleged in the NOV/FOV. The root causes of these exceedances were identified, corrected and determined to be non-systemic. The first of these two incidents revealed 13% door leaks as a result of operator error in which training and discipline were issued to correct the problem and to prevent its reoccurrence. The second of these two incidents revealed 12% leaks, as a result of a rare mechanical problem that resulted in improper backpressure. Equipment was

repaired and replaced; and operating procedures were revised to prevent its reoccurrence.

3. **Battery 7** – Of the ten (10) alleged door violations cited in the NOV/FOV, four (4) alleged violations were for Battery 7. As seen in the attached data for doors, there have been three (3) isolated door exceedances out of over 630 observations, yielding a 99.5% compliance rate, since those alleged in the NOV/FOV. The root causes of these exceedances were identified, corrected and determined to be non-systemic. The first of these two incidents revealed 12% door leaks as a result of operator error in which training and discipline were issued to correct the problem and to prevent its reoccurrence. The second of the incidents revealed a door leak rate of 11% that was a result of an equipment synchronization problem after a transmitter was replaced. The synchronization problem resulted in improper backpressure that caused seals to fail. U. S. Steel revised its procedures to indicate that the synchronization will occur as part of the process involving the replacement of a transmitter. The third and final incident resulted in a 13% door leak rate. The leak rate was attributable to poor sealing on the doors. U. S. Steel has since replaced nearly all of the doors that were reported to have leaked at the time; and made appropriate repairs to others as necessary.

As indicated in the attached tables, U. S. Steel has implemented corrective actions that have successfully prevented the reoccurrence of the incidents identified above.

U. S. EPA Request No. 2: Pushing – "Considering the number of pushing violations cited in the NOV/FOV and the current configuration of the baghouse at the northern end of Battery 5, how will U. S. Steel ensure continuous compliance with the Indiana SIP and CAA? Please provide a detailed explanation with supporting evidence."

U. S. Steel Response:

As noted in the attached table, Table 2, compliance with pushing emission standards has improved greatly as a result of implementing corrective action and proactive programs at the coke plant. The improvements that U. S. Steel has implemented at the coke plant in areas of doors (see above), offtakes (see below), and re-occurring training have resulted in significant improvements in pushing compliance also. While U. S. Steel maintains a goal to achieve 100% compliance, it is significant to note that since January 2008, the percent compliance with the pushing emission standards has improved to 99.97% for the entire coke plant. On a battery-specific basis, the pushing compliance since January 2008 has revealed 99.95% compliance (one exceedance in 1,958 observations) at Battery 2; 100% compliance (no exceedances in 1,948 observations) at Battery 5; and 99.95% compliance (one exceedance in 2001 observations) at Battery 7. The root causes of the two incidents identified above were identified, corrected and determined to be non-systemic.

U. S. Steel also notes that the current configuration of the baghouse does not impact pushing emissions from any of the batteries. The baghouse that is located at the northern end of Battery 5 provides induced draft to capture the emissions from

pushing for Batteries 5 and 7. The draft that is created by the baghouse is directed to the battery by a movable hood and stationary duct system with individual damper ports. Prior to each push the moveable hood is positioned over the oven that is to be pushed and is drafted through the associated damper ports. When the hood and duct system is in position, the draft created by the baghouse is directed to the oven being pushed. The design of the baghouse and moveable hood and duct system is engineered to capture at all ovens regardless of physical location (distance) from the baghouse.

U. S. EPA Request No. 3: Offtake Piping – "Please submit any 'offtake piping replacement program' for Batteries 2, 5 and 7. As part of the replacement program, submit a list of all repairs and replacements, other than sealing the offtakes, performed by U. S. Steel to address the oftake piping leak problem. Also, submit an engineering study of the offtake piping program for each battery."

U. S. Steel Response:

As noted in the attached table, Table 3, compliance with offtake emission standards has improved greatly as a result of implementing corrective action and proactive programs at the coke plant. While U. S. Steel maintains a goal to achieve 100% compliance, it is significant to note that since January 2008, the percent compliance with the offtake emission standards has improved to 99.7% for the entire coke plant. On a battery-specific basis, the offtake compliance since the last exceedance alleged in the NOV/FOV is 99.2% compliance (five exceedances in 639 observations, with no exceedances occurring in the last eight months) at Battery 2; 100% compliance (no exceedances in 639 observations) at Battery 5; and 100% compliance (no exceedances in 636 observations) at Battery 7. The root causes of the incidents at Battery 2 were identified, corrected and determined to be non-systemic, as evidenced by no exceedances being observed from Battery 2 offtakes over the last eight months.

As noted in response to No. 1, above, U. S. Steel indicated that it has implemented the following program to minimize emissions from offtake piping from Batteries 2, 5 and 7:

6. Offtake Inspection Program – U. S. Steel implemented an offtake inspection program which included the following steps:
    a. Routine inspection of the offtakes for:
        i. Identification of offtakes which are in need of repair; and/or
        ii. Identification of offtakes which are in need of replacement.
    b. Completion of identified repairs or replacements.
    c. This results in improved door performance because it allows the coke oven gas unrestricted escape from the oven chamber to the collector main.

The program has proven effective as indicated by the data showing improved environmental performance at the coke plant. Implementing the inspection program resulted in expeditious repairs being made to the offtakes as necessary; and replacements of offtakes when appropriate. U. S. notes that it has replaced

approximately 115 offtakes at the coke plant since the last alleged offtake exceedance listed (August 13, 2007) n the NOV/FOV.

To respond to U. S. EPA's request for an "engineering study of the offtake piping program for each battery," U. S. Steel is attaching Figures 1 and 2 which are schematics of offtake arrangements for Battery 2, and Batteries 5 and 7, respectively, noting that the offtake arrangements on Batteries 5 and 7 are essentially the same.

U. S. EPA Request No. 4: Coke Processing Equipment – "Please submit copies of these corrective actions performed which address each specific violation cited in the NOV/FOV."

U. S. Steel Response:

While U. S. Steel maintains that it cannot provide "copies" of "corrective actions," it is providing additional information as to the corrective actions that were employed for each of the incidents identified in the NOV/FOV. U. S. Steel does record and track corrective actions in its EMS program, which U. S. Steel described to U. S. EPA in our correspondence dated September 5, 2008. The information provided herein was derived from a review of our electronically maintained EMS program.

First, U. S. Steel would like to point out that the opacity readings taken after an incident occurs, and after corrective actions were employed, is indicative of the effectiveness of the corrective actions and is evidence in itself that corrective actions were employed. Each of the incidents and corrective actions is described below:

September 28, 2006 Incident
This incident was caused by the loss of suction. The No. 1 Booster shutdown caused the loss of suction. The heater contacted the battery and heating manager to shut off coke oven gas until the opacity issue was stabilized and the booster was restored. The No. 1 Booster was inspected and repaired. Investigation team members included David Barker, Ted Gross, and Jim Hoppe.

October 7, 2006 Incident
Immediately after realizing that the opacity was elevated, U. S. Steel quickly investigated the source and discovered that smoke was observed in Oven No. 30. The heater quickly closed the affected quadrants and the opacity was reduced. U. S. Steel then inspected the oven and discovered a hole in the 31 wall. Investigation team members included Donald Whitehead, Dave Barker, Ted Gross, and Lineal Cistrunk. The patchers sprayed the pusher side 31-wall and coke side jambs; and completed repairs on October 11, 2006. Affected personnel were contacted and refreshed on operating procedures regarding oven temperature and incident response.

June 2007 Incidents (3)
These three incidents were all related to the loss of beneficial carbon on Battery 2. Battery 2 was temporarily out of operation. During this time, the oven chambers had to be pushed out and emptied. The empty ovens were kept hot, and were full of

ambient air after the last push. U. S. Steel completed various refractory repairs on the battery while the battery was temporarily out of operation. During this time, the air burnt away the beneficial carbon that typically works as a sealing agent in the battery refractory. Burning away the beneficial carbon resulted in emissions escaping through the flues and ultimately through the underfire stack. While U. S. Steel completed substantial proactive refractory inspection and repairs while the battery was not in operation, and while it prudently placed the battery back into operation after it was temporarily idled, deficiencies in certain areas of the refractory led to higher underfire stack opacity when the battery placed back into operation. In response to the high opacity observations, U. S. Steel investigated the source of the opacity and expeditiously completed substantial refractory repairs on Battery 2 to correct the opacity from the underfire stack. More specifically, the following corrective actions included, but are not limited to, the following:

On June 26, 2007, brick replacement and repairs were made to Oven 28, West Wall 28; Oven 20, West Wall 20; No. 1 Flue was cleaned;

On June 26, 2007, repairs were made to Oven 39 – coke side jamb; and brick replacements and welding repairs were made to Oven 39, East Wall 40; and brick replacements and welding repairs were made to Oven 39, West Wall 39.

On June 29, 2007, repairs were made to Oven 53's pusher-side jamb; brick replacements and welding repairs were made to Oven 53, West Wall 53; and brick replacements and welding repairs were made to Oven 53, East Wall 54.

Investigation team members included Donald Przybylinski and George Coulter.

September 15, 2007 Incident
This incident was a result of reduced suction that was caused from a boiler tripping which resulted in substantial loss of steam pressure. Gas was cut on both Batteries 5 and 7 when the increased opacity was realized. When the boiler was re-lit, the system and pressure stabilized. U. S. Steel investigated the reason why the boiler failed. U. S. Steel discovered that the nitrogen demand exceeded the supply on No. 9 boiler which ultimately caused the boiler to trip. U. S. Steel made corrections to boiler processes that will prevent the reoccurrence of the loss of steam. Investigation team members included David Barker and Raul Arana.

December 18, 2007 Incident
The incident was caused by a hole in 60 oven on 60 wall (between the 29th and 30th flues). Coke oven gas flow was disrupted; and during this period, U. S. Steel placed all three batteries to neutral. Upon initial discovery of the incident, U. S. Steel turned the gas off on oven walls 60 and 51. 60 oven was banked and later welded repairs were made. In addition, oil reversing cores on both 5 and 7 batteries were repaired on December 19, 2007. The investigation team members included Doug Lovall and Lineal Cistrunk.

U. S. EPA Request No. 5: Underfire Stack Opacity – "On January 30, 2009, U. S. Steel submitted a compliance plan summarizing the steps it has taken and will take to ensure compliance with its underfire stack visible emissions requirements. The

procedure initiated by U. S. Steel was to be completed at the end of February 2009. As part of this plan, U. S. Steel was to complete repairs to end-flues on Batteries 2, 5, and 7, establish a preventative maintenance refractory program for all three batteries, and submit a compliance plan to implement long-term and short-term commitments to minimize emissions. Please submit the following information regarding the underfire stack compliance plan:

i. The oven numbers at each battery on which the above specified work was conducted;
ii. The type of work performed on each oven number;
iii. The ovens that are planned for repair in 2009; and
iv. Quarterly updates on the progress of implementing the compliance plan.

U. S. Steel Response:

U. S. Steel will begin to provide quarterly updates on the progress of implementing the compliance plan. The first report will be submitted by July 31, 2009 updating progress for the 2nd quarter. Outlined below is a summary and description of the work completed in 2008 and planned work for 2009. U. S. Steel executes the following programs associated with oven and wall repairs.

1. Enhanced preventative maintenance refractory repair program.
2. Annual end-flues and thru-walls program.
3. Enhanced Oven Inspection and Repair Program

1. Enhanced preventative maintenance refractory repair program

The enhance preventative maintenance refractory repair plan consist of conducting preventative routine dry-gunning of all ovens annually. The program is a predictive / preventative program that is completed on ovens routinely independent of oven performance.

Battery 5

In 2008, all ovens received the enhanced preventative maintenance refractory repair. Work was completed November 30, 2008.

In 2009, all ovens will receive enhanced preventative maintenance refractory repair. Work is schedule for completion by June 30, 2009

Battery 7

All ovens received the enhanced preventative maintenance refractory repair. Work was completed November 30, 2008.

In 2009, all ovens will receive enhanced preventative maintenance refractory repair. Work is schedule for completion by September 30, 2009

EPA-R5-2012-0005960000362

Battery 2

All ovens received the enhanced preventative maintenance refractory repair. Work was completed by December 31, 2008.

In 2009, all ovens will receive enhanced preventative maintenance refractory repair. Work is schedule for completion by December 31, 2009.

2. Annual end-flues and thru-walls program.

This program includes oven wall inspections identifying end-flues that need repair/replacement and walls that need replaced. Schedules will be developed and implemented to address the problem ovens. The program results in more consistent heating and improved stack performance.

In 2008 seven end-flues were completed on Batteries 5 and 7. On Battery 5, end-flues #40, #41, #60, #61, and #62 on wall coke side were completed. On Battery 7, end-flues #1 and #2 on wall coke side were completed.

In 2008, seven thru-walls were completed on Battery 2. These thru-wall numbers were #22, #23, #24, #25, #26, #27, and #28.

In 2009, U. S. Steel completed repairs/replacement on end flues on coke side walls #65, #66, #67, and #68 on Battery 5. Additional end flues repairs/replacements are planned during the remainder of 2009.

3. Enhanced Oven Inspection and Repair Program

In addition to the programs noted above, U. S. Steel uses the enhanced oven inspection and repair program. The program has been the key to the improvement in the performance of the underfire stacks. Simply, this program identifies problem ovens using the COM data and oven wall inspections and then appropriate corrective actions are identified and implemented. This program is used in addition to normal routine inspections. The goal of this program is to identify and correct a problem before an exceedance occurs. The following are the elements of the enhanced oven inspection and repair program:

A. Identification of Potential Opacity Problem – An improved system for notification of increases in opacity has been developed and implemented. Managers and heaters are notified via meter room alarms, pagers and cell phones when a potential issue with any stack is identified. Also, U. S. Steel tracks oven performance and identifies ovens that have the greatest frequency of opacity issues. These procedures are in addition to routine inspections. The goal is to identify the problem area before an exceedance occurs.

B. Oven Inspections – If data analysis or inspection reveals a potential problem with an oven, U. S. Steel investigates the source to identify and implement the appropriate corrective action.

C. Implementation of Corrective Action – Each problem is very unique and the appropriate corrective action must be identified and implemented based on the oven inspection and data analysis. Corrective actions include, but are not limited to, the following:

a. Cleaning and/or rodding of the flues and ports;
b. Sealing of identified leaks;
c. Adjustments in heating practices to reduce opacity;
d. Conventional spraying;
e. Drygunning;
f. Repairs to end flues; and
g. Thru-walls;

In addition, during the past two years, U. S. Steel, has (and it continues) to implement various best operating practices aimed at improving the environmental performance of the coke oven batteries. These practices include improving leveling practices to consistently provide a tunnel-head across the top of the oven that allows the gas to flow freely into the off-take system, reducing oven pressure. U. S. Steel has increased its monitoring of charging practices to insure that ovens are not left empty unnecessarily for long periods of time. U. S. Steel also monitors gooseneck cleaning and has improved the maintenance of the flushing liquor sprays.

Implementation of this enhanced program has led to the reduction in opacity at the underfire stacks.

Should you have any questions regarding this response or the attachments, please contact me. A certification statement regarding this is response is provided on the following page.

Very truly yours,

David W. Hacker

cc:

Thomas Easterly, Commissioner
Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, IN 43204

Sabrina Argentieri, Esq. (USEPA) – via email
Robert Lange (USS) – via email
Mardanna Soto (USS) – via email
James Alexander (USS) – via email
David Smiga (USS) – via email
Tishie Woodwell (USS) – via email
Mark Jeffrey (USS) – via email

CERTIFICATION

I certify under penalty of law that I have examined and am familiar with the information in the enclosed documents, including all attachments. Based on my inquiry of those individuals with primary responsibility for obtaining the information, I certify that the statements and information are, to the best of my knowledge and belief, true and complete. I am aware that there are significant penalties for knowingly submitting false statements and information, including the possibility of fines or imprisonment pursuant to section 113(c)(2) of the Act, and 18 U.S.C. Sections §§ 1001 and 1341.

S. K. Owen General Manager - Gary Works
Name and Title

5-27-09
Date

U. S. Steel Gary Works - Table 1 Coke Doors

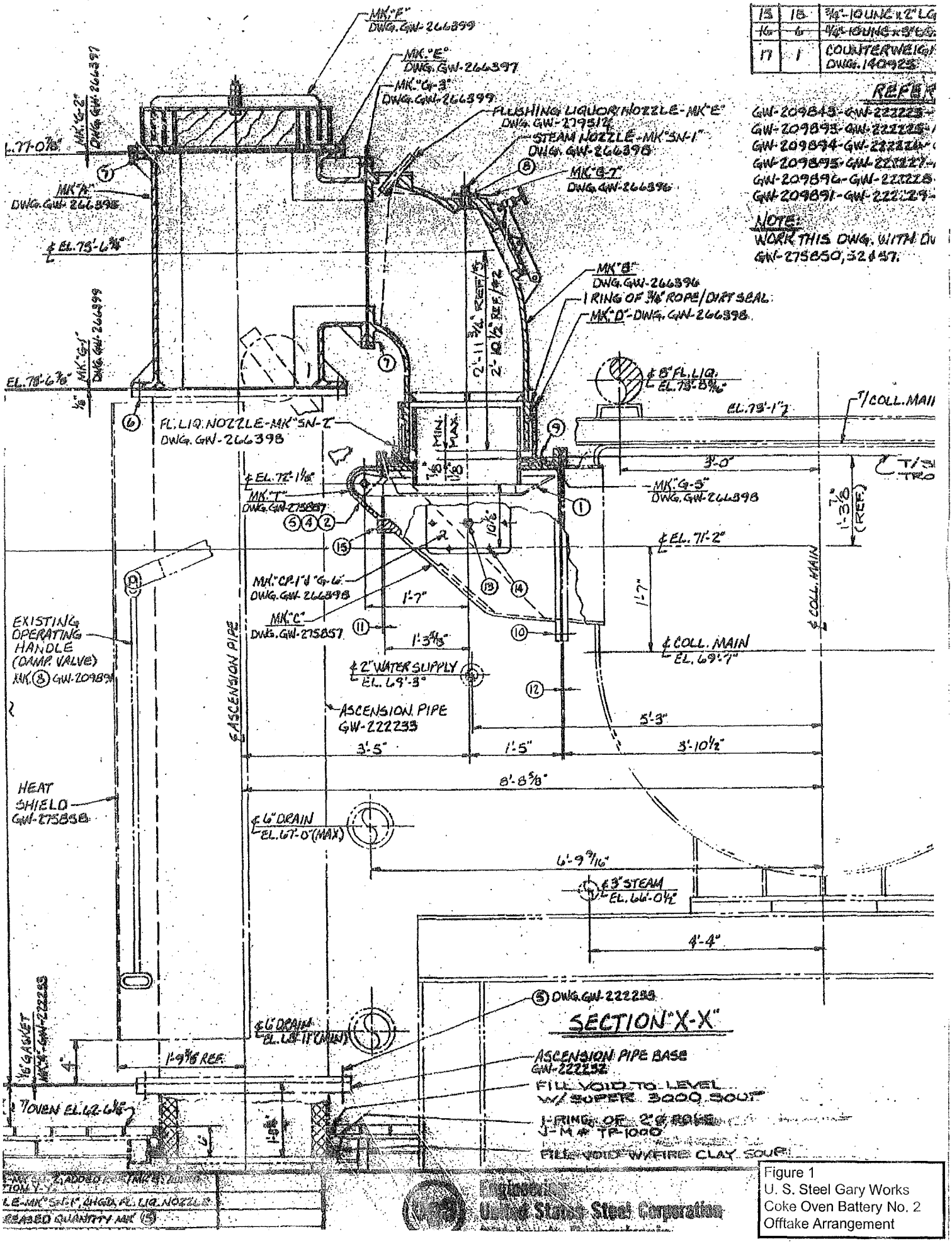
	CB 2		CB5		CB7	
	Excursions	Obs	Excursions	Obs	Excursions	Obs
Jan-06		21		21	1	21
Feb-06	6	28		28		28
Mar-06	1	31		31		31
Apr-06		30		30		30
May-06		31	1	31		31
Jun-06		30		30		30
Jul-06		31	1	31		31
Aug-06	1	31		31	1	31
Sep-06		30		30		30
Oct-06	1	31		31		31
Nov-06		30		30	1	30
Dec-06		31		31		31
Jan-07		31		31		31
Feb-07		28	1	28		28
Mar-07		31		31		31
Apr-07		30		30		30
May-07		4		31	1	31
Jun-07		6		30		30
Jul-07	1	31	1	31	1	31
Aug-07		31	1	31		31
Sep-07		30		30		30
Oct-07		31	1	31		31
Nov-07		30		30		30
Dec-07		31		31		31
Jan-08		31		31		31
Feb-08		29		29		29
Mar-08		31	1	31		31
Apr-08		30		30		30
May-08		31		31	1	31
Jun-08		30		30	1	30
Jul-08		31		31	1	28
Aug-08		31		31		31
Sep-08		30		30		30
Oct-08		31		31		31
Nov-08		30		30		30
Dec-08		31	1	31		31
Jan-09		31		31		31
Feb-09		28		28		28
Mar-09		31		31		31
Apr-09		30		30		30

U. S. Steel Gary Works - Table 2 Coke Pushing

	CB 2		CB5		CB7	
	Excursions	Obs	Excursions	Obs	Excursions	Obs
Jan-06		124		124	1	124
Feb-06		112	1	112		112
Mar-06		124		124		116
Apr-06		120	1	120	1	120
May-06	1	124	1	124		124
Jun-06		120		120	1	120
Jul-06	1	123		125		124
Aug-06		116	2	124	1	124
Sep-06		120		122		120
Oct-06	1	124		126		124
Nov-06		120	1	120		120
Dec-06		164		164		164
Jan-07	2	195		186		186
Feb-07		172		166		167
Mar-07		186	2	185		184
Apr-07		180		174		169
May-07		24	1	173		181
Jun-07		37	1	180		180
Jul-07	5	203		176	4	186
Aug-07		194		172		186
Sep-07	1	186		163	1	172
Oct-07		186	1	167		180
Nov-07		184		168		171
Dec-07		186		183		186
Jan-08		128		130		132
Feb-08		117		117		118
Mar-08		124		128	1	147
Apr-08		121		119		122
May-08		126		121		135
Jun-08		120		124		125
Jul-08		124		124		117
Aug-08	1	127		126		125
Sep-08		120		127		124
Oct-08		125		119		122
Nov-08		123		120		125
Dec-08		124		120		125
Jan-09		123		116		122
Feb-09		112		112		117
Mar-09		124		121		125
Apr-09		120		124		120

U. S. Steel Gary Works - Table 3 Coke Offtakes

	CB 2		CB5		CB7	
	Excursions	Obs	Excursions	Obs	Excursions	Obs
Jan-06	2	21		21		21
Feb-06	1	28		28		28
Mar-06		31		31	1	31
Apr-06		30	1	30		30
May-06		31		31		31
Jun-06		30		30	2	30
Jul-06		31		31		31
Aug-06	1	31		31		31
Sep-06		30		30		30
Oct-06	1	31		31		31
Nov-06		30		30	1	30
Dec-06		31		31		31
Jan-07		31		31		31
Feb-07		28		28		28
Mar-07		31		31		31
Apr-07	1	30		30		30
May-07	1	4		31		31
Jun-07		6		30		30
Jul-07	1	31		31		31
Aug-07		31		31		31
Sep-07		30		30		30
Oct-07		31		31		31
Nov-07		30		30		30
Dec-07		31		31		31
Jan-08		31		31		31
Feb-08		29		29		29
Mar-08		31		31		31
Apr-08		30		30		30
May-08		31		31		31
Jun-08		30		30		30
Jul-08	1	31		31		28
Aug-08	1	31		31		31
Sep-08	3	30		30		30
Oct-08		31		31		31
Nov-08		30		30		30
Dec-08		31		31		31
Jan-09		31		31		31
Feb-09		28		28		28
Mar-09		31		31		31
Apr-09		30		30		30



15	15	3/4"-10 UNC x 2" LG
16	6	1/2"-13 UNC x 3" LG
17	1	COUNTERWEIGHT DWG. 140925

REFER
GW-209843-GW-222223-
GW-209893-GW-222225-
GW-209894-GW-222226-
GW-209895-GW-222227-
GW-209896-GW-222228-
GW-209891-GW-222229-

NOTE:
WORK THIS DWG. WITH DW
GW-275850, 52 & 57.

Figure 1
U. S. Steel Gary Works
Coke Oven Battery No. 2
Offtake Arrangement

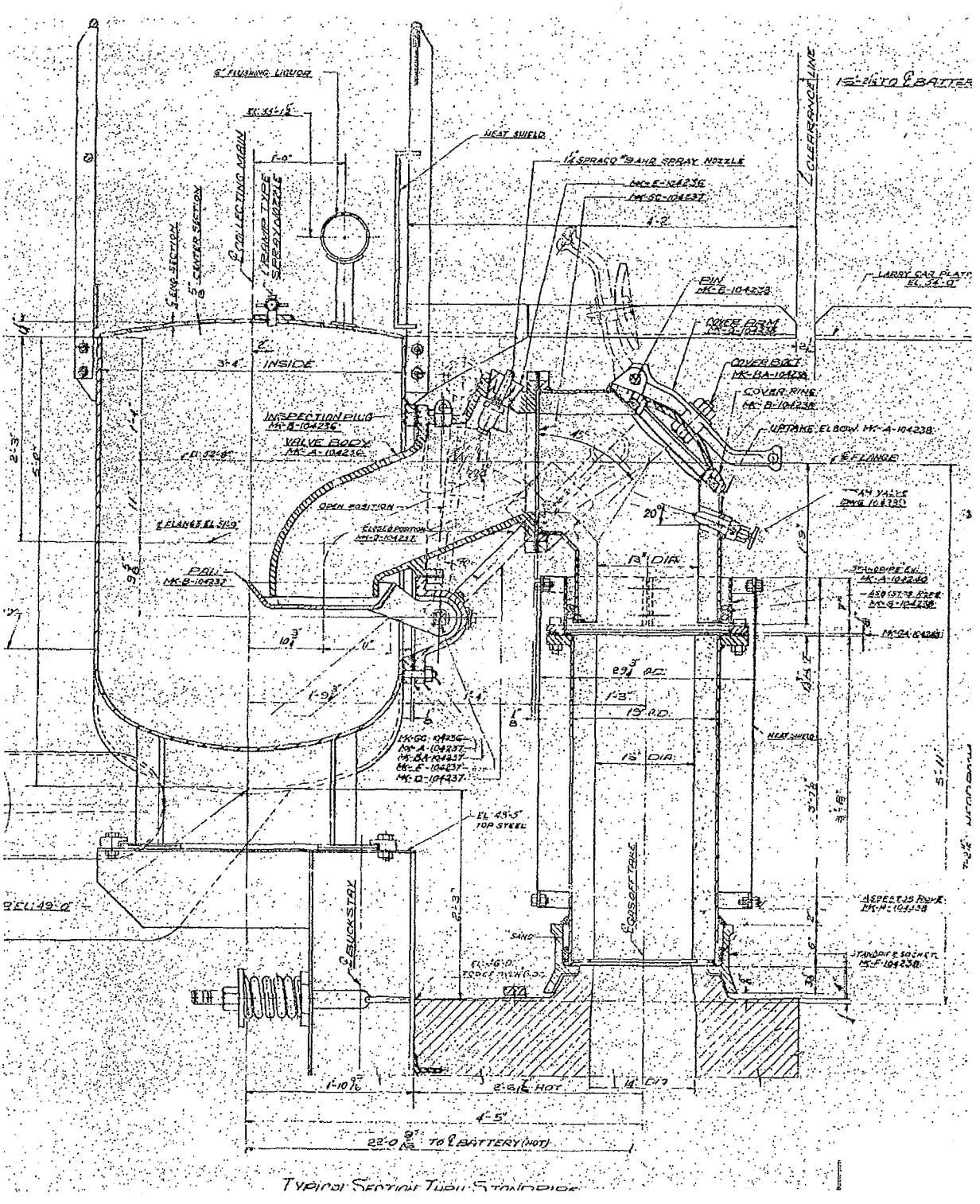


Figure 2
U. S. Steel Gary Works
Coke Oven Batteries 5 and 7
Typical Offtake Arrangement